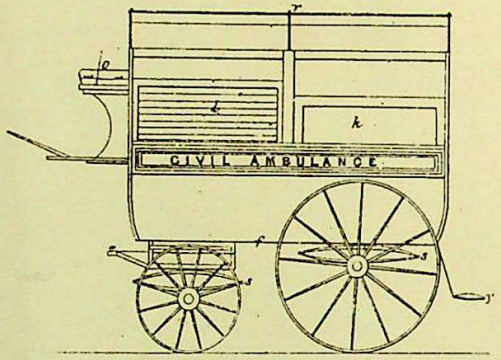
A.D. 1860. June 11. No 1428.
De Tivoli's
Ambulances,
Sheets.
No 2.

Class 1 Plate
296
17

1421
1860

A

1.



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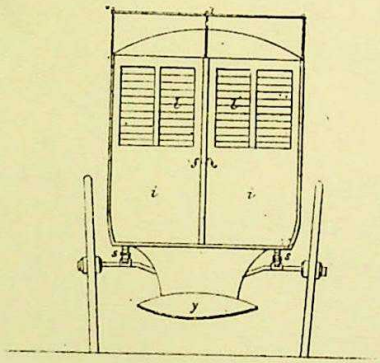

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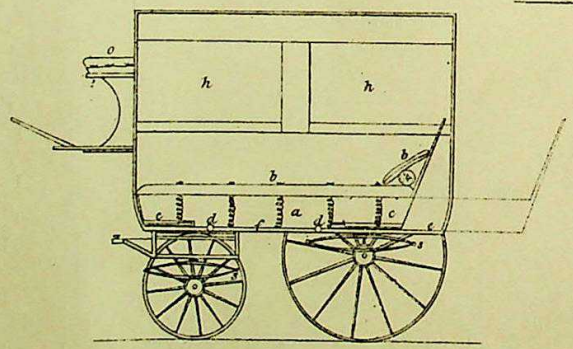
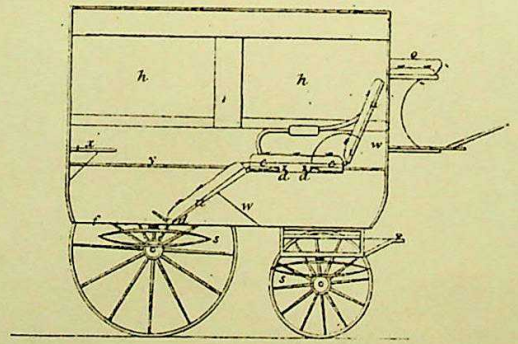
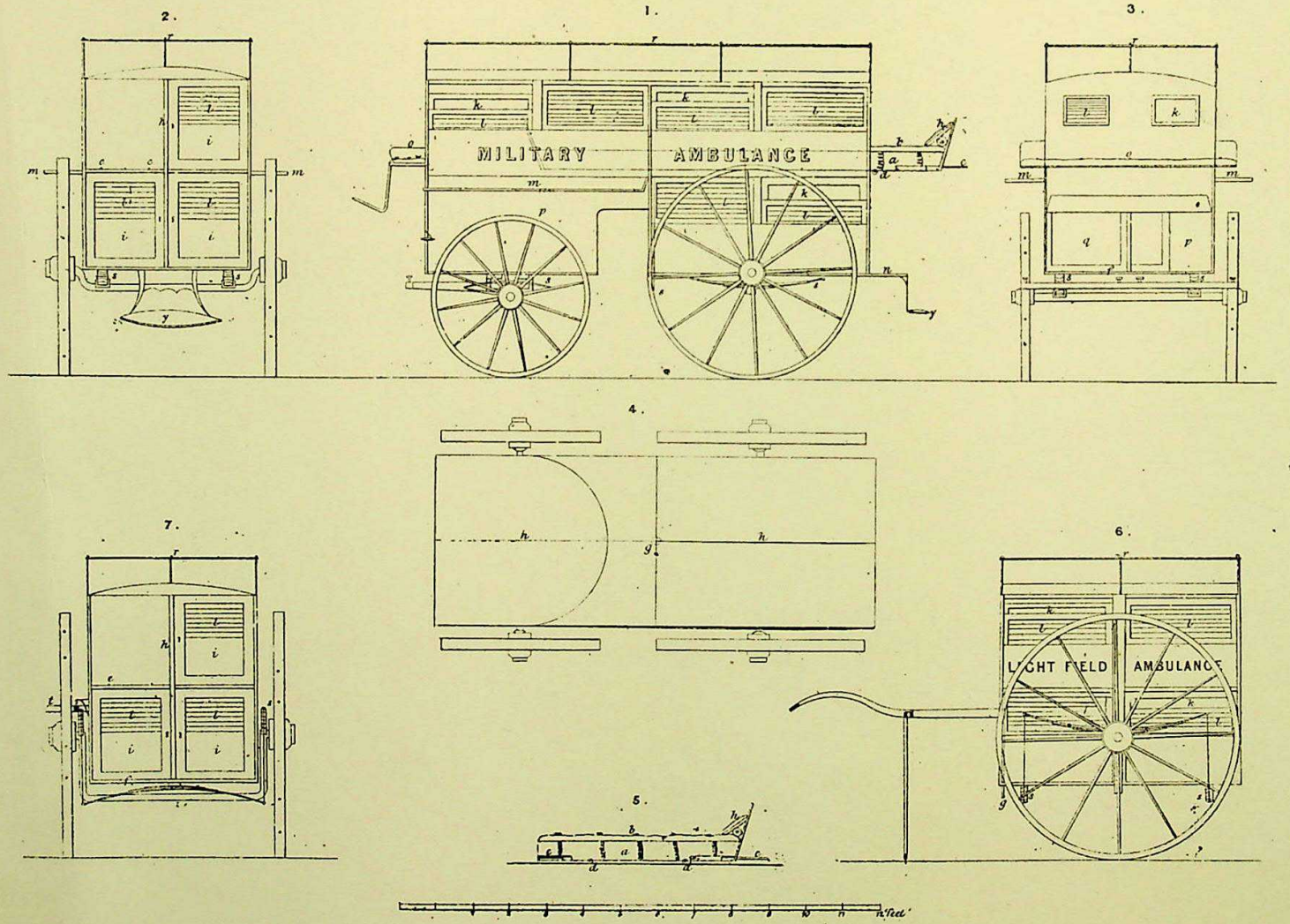




A.D. 1860. JUNE 11. N°1428.
DE TIVOLI'S SPECIFICATION.

Ambulance.
2 Sheets
Sol.
8

B



grooves on floor engaged by cantons on bed.

A.D. 1860, 11*th* *June*. N° 1428.

Civil and Military Ambulances.

LETTERS PATENT to Vital de Tivoli, of 18, Stanley Place, Pimlico, London, in the County of Middlesex, for the Invention of "IMPROVEMENTS IN CIVIL AND MILITARY AMBULANCES."

Sealed the 4th December 1860, and dated the 11th June 1860.

PROVISIONAL SPECIFICATION left by the said Vital de Tivoli at the Office of the Commissioners of Patents, with his Petition, on the 11th June 1860.

I, VITAL DE TIVOLI, of 18, Stanley Place, Pimlico, London, in the County of Middlesex, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN CIVIL AND MILITARY AMBULANCES," to be as follows:—

My improved civil ambulance carriage consists of a four-wheel spring carriage, about eight feet long, and four feet wide in the body. It is divided longitudinally in two equal well lighted and well ventilated right and left compartments. The floor of the right compartment has two parallel rails through all its length, on which slide some casters under the bed frame.

The bed consists of a very light elastic paillasse with a small mattress, bolster, and pillow, covered with an impervious stuff allowing washing and disinfecting operations. The paillasse is fixed on a frame, having casters to fit on the rails on the floor of the right compartment, and two articulated handles at each end, rendering it available as a common stretcher. The articulated handles are pushed in when the stretcher bed is placed into the carriage.

The left compartment has no rails on its floor but has instead two lateral grooves about one foot above the floor of the carriage, to receive some casters on the sides of a chair bed. The chair bed is composed of three principal parts, that is, the seat, the back, and the leg support, each formed by a distinct frame hinged to one another, and each furnished with an elastic apparatus and cushions as described for the stretcher bed. The seat of the bed chair has four casters, two on each side, to slide into the lateral grooves in the carriage.

The back and leg support can be raised or lowered to any angle or to a level with the seat by the means of graduated guides. The leg support has also some casters at its lower end touching the floor. Both the stretcher bed and bed chair can be introduced into the carriage head or feet foremost. A flap seat is adapted to the door of the left compartment for an assistant to watch on the invalids on the road. A portion of the middle partition is made to open to put both sides in communication when required.

Two assistants or convalescents can be accommodated by the side of the driver on the box. On the top of the carriage chests of medicines and the effects of the invalids can be placed. Windows with glass and blinds all round the carriage provide plenty of light and air for the invalids and their assistants.

The carriages for the service of military ambulance are a little different from these for the civil service. The stretcher bed is the same. The military ambulance carriages are of two kinds, the heavy containing six stretcher beds, the light or flying containing four stretcher beds.

The six-bed carriage rests on four wheels and springs; the beds are disposed in its interior on two tiers. On the lower tier there is room for two beds, a vertical partition divides that space into two equal compartments or cabins. Each cabin is about six feet long, two wide, and two and a half high, has on its floor two parallel rails for the casters under the beds to slide on, and receives light and ventilation from windows all along its upper portion. The floor is also slightly inclined towards a central point of the carriage where is a gutter. The second tier is double the length of the first, and each compartment contains two beds. The space under the beds in front of the carriage is occupied by a box or magazine extending through all their width and nearly all their length, except a small portion left for the locking of the weels. A seat for five is in front of the carriage. The floor of the first tier extends outside in the form of a platform at the back of the carriage along all its width, serving both to reach the second tier and as a table for distributions and similar purposes.

De Tivoli's Improvements in Civil and Military Ambulances.

The light or flying ambulance carriage rests upon two wheels and springs. It is constructed on the same principle as the six-bed carriage, with the difference that the whole of the front half is suppressed, consequently the axle and springs are arranged a little differently to give it the proper balance. Railway carriages could be fitted with these beds. A railing surrounds the top of the carriages for boxes, effects, arms, or other things.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Vital de Tivoli in the Great Seal Patent Office on the 10th December 1860.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, VITAL DE TIVOLI, of 18, Stanley Place, Pimlico, London, in the County of Middlesex, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Eleventh day of June, in the year of our Lord One thousand eight hundred and sixty, in the twenty-third year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Vital de Tivoli, Her special licence that I, the said Vital de Tivoli, my executors, administrators, and assigns, or such others as I, the said Vital de Tivoli, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN CIVIL AND MILITARY AMBULANCES," upon the condition (amongst others) that I, the said Vital de Tivoli, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Vital de Tivoli, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement and accompanying Drawings (that is to say):—

My improvements relate to certain modifications introduced in the construc-

tion of ambulance beds and carriages with a view to increase the comforts of the invalids, facilitate the means of succouring and conveying them from one to another place, and even on railways with the least amount of sufferings.

The improved ambulance carriage intended for civil service is represented in the annexed diagrams under letter A.

No. I. Longitudinal elevation of the carriage.

II. Back elevation of the same.

III. Vertical section showing right compartment with stretcher bed.

IV. Vertical section, showing left compartment with chair bed and articulated seat for attendant.

V. Stretcher bed.

The carriage consists of a four wheels and spring carriage, about eight feet long, and four feet wide in the body, it is divided longitudinally into two equal well lighted, and well ventilated right and left compartments. The right compartment has on its floor (*f*,) two parallel rails (*e*) on which slide the castors (*d*) under the bed frame.

The bed consists of a very light elastic paillasse (*a*), with a small mattress, bolster, and pillow (*b*) covered with an impervious stuff, or simply air or water mattress, and cushions, on a plain frame, allowing washing and disinfecting operations V, A, B. The paillasse is fixed on a frame having castors (*d*) to fit on the rails (*e*) on the floor of the right compartment, and two articulated handles (*o*) at each end rendering it available as a common stretcher when pulled out horizontally or acting as feet when fixed vertically A, B, V (*c*). The articulated handles are folded in when the stretcher bed is placed into the carriage III. The left compartment has no rails on its floor, but has instead two lateral grooves (*v*) about one foot above the floor of the carriage to receive some castors (*d*) on the sides of the chair bed (*u*). The chair bed (*u*) is composed of three principal parts, the seat, the back, and the leg support, each formed by a distinct frame hinged to one another, and each furnished with an elastic apparatus and cushions as described for the stretcher bed. The seat of the chair has castors (*d*) on its sides, which slide into the lateral grooves (*v*) in the carriage, and besides four articulated handles (*c*,) two in front, and two behind like those of the stretcher bed. The back and the leg support can be raised or lowered to any angle, or to a level with the seat by the means of graduated guides (*w*). The leg support has also some casters at its lower end touching the floor (*d*). Both the stretcher and the chair bed can be introduced into the carriage head or feet foremost.

A flap seat (*x*) is adapted to the door of the left compartment for an

assistant to tend the invalids on the road. A portion of the middle partition (*h*) is made to open to put both sides in communication when required.

Two assistants or convalescents can be occasionally accommodated by the side of the driver on the box (*o*). Chests of medicines or other things can be placed on the top of the carriage within the railings (*r*). Windows with glass (*k*), and blinds (*l*) all round the carriage, and if desired some openings in the roof provide plenty of light and air for the invalids and their assistants. One or more compartments might be fitted on that system, and set apart in some railway carriages on all lines so that they might receive and exchange the stretcher beds and chair beds from or to the ambulance carriages without disturbing the invalids from their beds.

The civil ambulance carriages might be simplified into one single compartment to receive alternately, as required, either the stretcher bed or the chair bed, which last might be also so modified as to run on the same rails or grooves as the bed.

The carriages for the service of military ambulance are somewhat different from those for the civil service. The stretcher bed is on the same principle. The military ambulance carriage are of two kinds, that is, the heavy, containing six beds; the light, containing four beds, as represented in diagrams under letter B.

No. I. Longitudinal elevation of a heavy ambulance carriage with six stretcher beds, for six invalids inside and five outside.

II. Back elevation.

III. Front elevation.

IV. Horizontal plan.

V. Stretcher bed.

VI. Longitudinal elevation of a light ambulance carriage.

VII. Back elevation of the same.

The six-bed carriages rest on four wheels and springs. The beds are disposed in their interior on two tiers. On the lower tier there is room for two beds only. A vertical partition (*h*) divides that space into two equal right and left compartments or cabins; each cabin is about six feet long, two and a half high, and two wide; has on its floor two parallel rails (*f*) or grooves for the casters (*e*) under the beds to slide on, and receives light and ventilation from windows with glass (*k*) and blinds (*l*) all along its upper portion, or openings on the roof, if preferred. The floor of each cabin is also slightly inclined towards a central point of the carriage, where is a gutter (*g*) for the issue of liquids.

The second tier is double the length of the first, and in each compartment contains two beds instead of one, so that the second tier holds in all four beds, two in front and two at the back.

The beds are all introduced through the doors (*i*) behind, and those in front are pushed in their places by those at the back. All can be introduced head or foot foremost.

The floor on which rest the two beds in front form the roof of a box or magazine (*p*) beneath, for the use of pharmacy. This rests with its lower plan on the fore springs, and extends through all the width of the two beds above and nearly all their length, excepting only a small portion allowed for the locking of the wheels. The front part of this magazine has a door (*q*) with lock and key. A seat (*o*) for five invalids or assistants is placed in front of the carriage. A lateral platform (*m*) on each side runs along the pharmacy box a little above the fore wheels, and serves to facilitate the loading and unloading of the boxes on the top of the carriage and to the tending of the invalids through the windows on the road.

The floor of the first tier extends outside in the shape of a platform (*m*) at the back of the carriage along all its width, serving both to facilitate reaching the second tier and as a table for distributions of food, medicines, and such purposes, Below this is a lower step (*y*).

The light or flying ambulance rests upon two wheels and appropriate springs. It is constructed on the same principle as the six-beds carriage, with the difference that the whole of the front half is suppressed, consequently the axle (*z*) and springs (*s*) are arranged a little differently, to give it the proper balance and perfect security in the rapid movements to which it is destined on every kind of roads and grounds.

Two horses are sufficient to draw the heavy ambulance carriages, and only one in the shafts is quite sufficient to draw the light in ordinary circumstances, but when one or two additional horses may be required, they may be easily put to by the means of splinter bars (*t*). Railings (*r*) are placed all round the top of the carriage to contain medical and surgical chests, arms, effects, or any other objects.

Having now described the nature of my improvements, and the manner in which the same are carried into effect, I wish it to be understood that what I claim as inventors intended to be secured to me by the above in part recited Letters Patent are,—

First, the construction of such carriages for the service of civil ambulance.

Second, their division in single compartments or cabins with stretcher beds and bed chairs.

Third, the special construction and application of the said stretcher and chair beds.

Fourth, the special construction of military ambulance carriages with stretcher beds in single compartments, having floors with rails or grooves, and slightly inclined towards a point where is a little gutter for the descent of the liquids, and all the arrangements of construction and materials intended to secure the greatest possible amount of comfort, ventilation, cleansing, and disinfection.

Fifth, the addition of a pharmacy magazine in the same carriage where the invalids lie, and besides the railings on the top to contain medical and surgical chests, arms, and other effects.

Sixth, the arrangements of having so many as six beds in the heavy ambulance carriage and four in the light field ambulance, with plenty of air, ventilation, and room for each invalid.

Seventh, the application of this system of ambulance beds and chair beds to railway carriages for the conveyance of civil and military invalids.

In witness whereof, I, the said Vital de Tivoli, have hereunto set my hand and seal, this Tenth day of December, in the year of our Lord One thousand eight hundred and sixty.

VITAL DE TIVOLI. (L.S.)

LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1860.